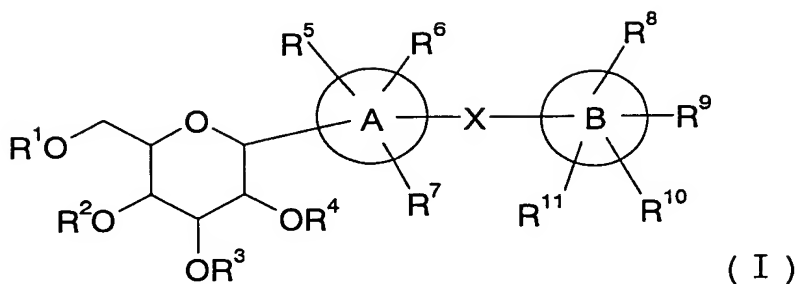


CLAIMS

1. A C-glycoside derivative of the following formula (I) and a salt thereof:

5 [Formula]



wherein A ring represents (1) a benzene ring, (2) a five or six-membered monocyclic heteroaryl ring having 1 to 4 hetero atom(s) selected from N, S, and O, or (3) a saturated or an unsaturated eight to ten-membered bicyclic hetero ring having 1 to 4 hetero atom(s) selected from N, S, and O;

B ring represents (1) a saturated or an unsaturated eight to ten-membered bicyclic hetero ring having 1 to 4 hetero atom(s) selected from N, S, and O, (2) a saturated or an unsaturated five or six-membered monocyclic hetero ring having 1 to 4 hetero atom(s) selected from N, S, and O, (3) a saturated or an unsaturated eight to ten-membered bicyclic hydrocarbon ring, or (4) a benzene ring;

X represents a bond or lower alkylene;

wherein A ring, B ring, and X have a correlation that (1) when A ring is a benzene ring, B ring is a ring other than a benzene ring or that (2) when A ring is a benzene ring, and B ring is a saturated or an unsaturated eight to ten-membered bicyclic hetero

ring having 1 to 4 hetero atom(s) selected from N, S, and O including a benzene ring, or a saturated or an unsaturated eight to ten-membered bicyclic hydrocarbon ring including a benzene ring, X is bonded to the B ring in a part other than the benzene ring included in the B ring;

R¹ to R⁴ individually represent a hydrogen atom, a lower alkyl, -C(=O)-lower alkyl, or -lower alkylene-aryl; and

R⁵ to R¹¹ individually represent a hydrogen atom, a lower alkyl, a cycloalkyl, a halogen, a halogen-substituted lower alkyl, -OH, =O, -NH₂, lower alkyl sulfonyl-, halogen-substituted lower alkyl sulfonyl-, aryl sulfonyl-, an aryl, a saturated or an unsaturated five or six-membered monocyclic hetero ring having 1 to 4 hetero atom(s) selected from N, S, and O, -lower alkylene-OH, -lower alkylene-O-lower alkyl, -lower alkylene-O-C(=O)-lower alkyl, -lower alkylene-O-lower alkylene-COOH, -lower alkylene-O-lower alkylene-C(=O)-O-lower alkyl, -lower alkylene-NH₂, -lower alkylene-NH-lower alkyl, -lower alkylene-N(lower alkyl)₂, -lower alkylene-NH-C(=O)-lower alkyl, -COOH, -CN, -C(=O)-O-lower alkyl, -C(=O)-NH₂, -C(=O)-NH-lower alkyl, -C(=O)-N(lower alkyl)₂, -O-lower alkyl, -O-cycloalkyl, -O-lower alkylene-OH, -O-lower alkylene-O-lower alkyl, -O-lower alkylene-COOH, -O-lower alkylene-C(=O)-O-lower alkyl, -O-lower alkylene-C(=O)-NH₂, -O-lower alkylene-C(=O)-NH-lower alkyl, -O-lower alkylene-C(=O)-N(lower alkyl)₂, -O-lower alkylene-CH(OH)-CH₂(OH), -O-lower alkylene-NH₂, -O-lower alkylene-NH-lower alkyl, -O-lower alkylene-N(lower alkyl)₂, -O-lower alkylene-NH-C(=O)-lower alkyl, -NH-lower alkyl,

-N(lower alkyl)₂, -NH-SO₂-lower alkyl,
-NH-SO₂-halogen-substituted lower alkyl, -NH-lower alkylene-OH,
-NH-C(=O)-lower alkyl, -NH-C(=O)-NH₂, -NH-C(=O)-NH-lower
alkyl, -NH-C(=O)-N(lower alkyl)₂, or , -NH-C(=O)-O-lower alkyl.

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2. A C-glycoside derivative and the salt thereof according to Claim 1,
wherein the A ring in the formula (I) is (1) a benzene ring or (2) a
five or six-membered monocyclic heteroaryl ring having 1 to 4
hetero atom(s) selected from N, S, and O.

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3. A C-glycoside derivative and the salt thereof according to Claim 2,
wherein the B ring in the formula (I) is (1) a saturated or an
unsaturated eight to ten-membered bicyclic hetero ring having 1 to
4 hetero atom(s) selected from N, S, and O or (2) a saturated or an
15 unsaturated five or six-membered monocyclic hetero ring having 1
to 4 hetero atom(s) selected from N, S, and O.

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4. A C-glycoside derivative and the salt thereof according to Claim 3,
wherein the A ring in the formula (I) is a benzene ring and the B
ring is a saturated or an unsaturated eight to ten-membered
bicyclic hetero ring having 1 to 4 hetero atom(s) selected from N, S,
and O.

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5. A C-glycoside derivative and the salt thereof according to Claim 4,
wherein the X in the formula (I) is methylene.

6. A C-glycoside derivative and the salt thereof according to Claim 5,

wherein the R¹ to R⁴ in the formula (I) are hydrogen atoms.

7. A C-glycoside derivative and the salt thereof according to Claim 1, wherein the C-glycoside derivative of the formula (I) is at least one compound selected from the group consisting of

- 5 (1S)-1,5-anhydro-1-[3-(1-benzothi-ene-2-ylmethyl)phenyl]-D-glucitol,
(1S)-1,5-anhydro-1-[5-(1-benzothi-ene-2-ylmethyl)-2-hydroxyphenyl]-D-glucitol,
(1S)-1,5-anhydro-1-[5-(1-benzothi-ene-2-ylmethyl)-2-methoxyphenyl]-D-glucitol,
- 10 (1S)-1,5-anhydro-1-[5-(1-benzothi-ene-2-ylmethyl)-2-(2-hydroxyethoxy)phenyl]-D-glucitol,
(1S)-1,5-anhydro-1-[5-(1-benzothi-ene-2-ylmethyl)-2-(methylamino)phenyl]-D-glucitol,
(1S)-1,5-anhydro-1-[5-(1-benzothi-ene-2-ylmethyl)-2-[(2-hydroxyethoxy)amino]phenyl]-D-glucitol,
- 15 (1S)-1,5-anhydro-1-[5-(1-benzothi-ene-2-ylmethyl)-4-methoxyphenyl]-D-glucitol,
(1S)-1,5-anhydro-1-[5-(1-benzothi-ene-2-ylmethyl)-4-chlorophenyl]-D-glucitol,
- 20 (1S)-1,5-anhydro-1-[5-(1-benzothi-ene-2-ylmethyl)-4-fluorophenyl]-D-glucitol,
(1S)-1,5-anhydro-1-[5-(1-benzothi-ene-2-ylmethyl)-2,4-dimethoxyphenyl]-D-glucitol,
(1S)-1,5-anhydro-1-[5-(1-benzothi-ene-2-ylmethyl)-4-chloro-2-methoxyphenyl]-D-glucitol,
- 25 (1S)-1,5-anhydro-1-[5-(1-benzothi-ene-2-ylmethyl)-4-chloro-2-hydroxyphenyl]-D-glucitol,

(1S)-1,5-anhydro-1-[5-(1-benzothiophen-2-ylmethyl)-4-fluoro-2-hydroxyphenyl]-D-glucitol, and

(1S)-1,5-anhydro-1-[5-(1-benzothiophen-2-ylmethyl)-4-fluoro-2-methoxyphenyl]-D-glucitol.

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8. A pharmaceutical composition containing a C-glycoside derivative or a salt thereof according to any one of Claims 1 to 7.

9. A pharmaceutical composition according to Claim 8, wherein
10 the composition is a Na⁺-glucose cotransporter inhibitor.

10. A pharmaceutical composition according to Claim 8, wherein the composition is an antidiabetic agent.

15 11. Use of the C-glycoside derivative and the salt thereof according to any one of Claims 1 to 7 for producing a Na⁺-glucose cotransporter inhibitor or an antidiabetic agent.

12. A method for treating diabetes comprising administering an
20 effective amount of the C-glycoside derivative and the salt thereof according to any one of Claims 1 to 7 to a patient.